

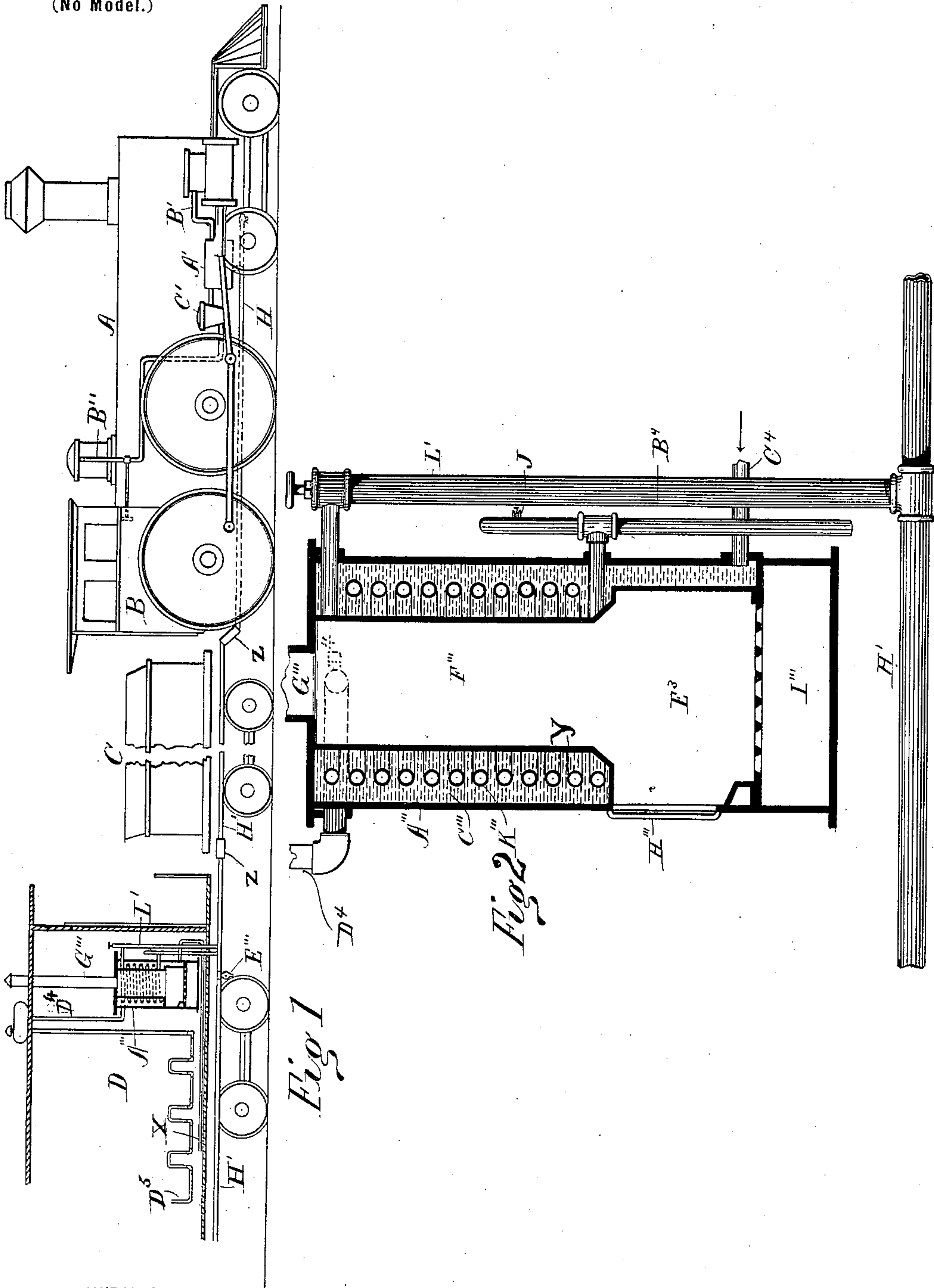
No. 610,997.

Patented Sept. 20, 1898.

J. F. McELROY.  
APPARATUS FOR HEATING CARS.

(Application filed Mar. 10, 1887.)

(No Model.)



WITNESSES:

C. C. Burdine  
R. S. Baece

INVENTOR

James F. McElroy  
BY  
Thos. F. Sprague & Son  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

JAMES F. McELROY, OF LANSING, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE CONSOLIDATED CAR-HEATING COMPANY, OF WHEELING, WEST VIRGINIA.

## APPARATUS FOR HEATING CARS.

SPECIFICATION forming part of Letters Patent No. 610,997, dated September 20, 1898.

Application filed March 10, 1887. Serial No. 230,339. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES F. McELROY, of Lansing, in the county of Ingham and State of Michigan, have invented new and useful Improvements in Apparatus for Heating Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to new and useful improvements in apparatus for heating cars.

The object of my invention is to provide a hot-water car-heating circulating system; and it consists in the peculiar construction, arrangement, and combination of the various parts, as more fully hereinafter described.

In the drawings, Figure 1 is a diagrammatic elevation of a railway locomotive and car, the latter in section and showing the heater also in section. Fig. 2 is an enlarged section through the water-heater.

A represents the locomotive, B the cab, and D a railway-car, all of usual construction.

B'' is a suitable steam-supply pipe from the steam-space of the locomotive. This is shown connected to a train or main supply pipe H H', extending rearwardly and connected between the cars by suitable couplings Z.

In the latter drawings I have shown a tank A', through which the pipe B'' connects with the train-pipe, and a pipe B' for exhaust-steam leading into said tank; but I do not herein show or claim the means for utilizing exhaust-steam. These may be omitted, and the pipe B'' may be connected directly with the train-pipe, but preferably having a pressure-regulating valve, such as C', to reduce the pressure.

The train-pipe I preferably provide with a trap E''' for removing the water of condensation. This trap may be of any desired construction.

The train-pipe H H' forms a conduit for the steam to the heaters on the cars—such, for instance, as shown in Fig. 2. This heater I have shown constructed as follows:

A''' is the casing of the heater, having a furnace E<sup>3</sup>, a combustion-chamber F''', ash-pit I''', and smoke-pipe G'''.

Y is an inner casing concentrically arranged in relation to the casing A''' and forming between the two casings a water-receptacle C'''.

D<sup>4</sup> is the eduction or outgoing pipe from the top of the receptacle C''', connecting with the radiator or circulating pipes D<sup>5</sup> in the car, and C<sup>4</sup> is the induction or return pipe connecting into the lower part of the receptacle.

K''' is a pipe-coil passing through the water-receptacle C'''. This coil is connected at its upper end with the train-pipe by the branch steam-supply pipe L', and at its lower end it connects into the exit-pipe B<sup>4</sup>, extending through the floor of the car, to carry off the water of condensation. The supply-pipe is provided with a suitable controlling-valve, and the exit-pipe preferably with an air-valve J of any suitable construction. The exit-pipe is preferably provided with a steam-trap. (Not shown.)

The operation is as follows: When the train is connected with the locomotive and steam is available through the train-pipe, it will enter the coil K'''. The circulating system being filled with water, that portion of the water in the receptacle C''' will be heated by the steam-coil, and the heated water will rise and flow through the circulating-pipes, radiating its heat into the car and returning to be reheated in the receptacle.

In case the locomotive is detached, so steam is not available, the furnace may be used. A fire therein will impart its heat through the casing Y to the water in the receptacle and heat and circulate the same.

It will also be seen that in either use of my heater the heater itself acts as a water-heater, radiating its heat into the car.

What I claim as my invention is—

1. In a car-heating system, the combination with a car, of a water-receptacle within said car provided with a system of circulating hot-water pipes extending through the car, of a main steam-pipe extending from the locomotive to said car, a steam-coil inclosed within said receptacle and connected with the main steam-pipe to heat water in said receptacle, and a combustion-chamber within the receptacle, substantially as described.

2. In a car-heating system, the combination

of a heater composed of an inner casing and an outer casing concentrically arranged, forming between them a space for water, said inner casing having within it a combustion-  
5 chamber in combination with circulating-pipes communicating with the space between the casings, a steam-coil passing through said space and a source of steam connected with the coil, substantially as described.

10 3. In a car-heating system, the combination with a hot-water-circulating system within the car, provided with a water-heater having a local source of heat within the same as a

means of heating the water therein, of a main supply-pipe in the car, adapted to be con- 15 nected with a distant source of steam, and an open branch pipe extending from the main pipe through the water in the heater, to a point below the bottom of the car to discharge the water of condensation, substantially as 20 described.

JAMES F. McELROY.

Witnesses:

U. G. RACE,  
L. C. BUTLER.